


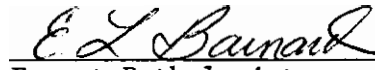
Forest Pest Management
Asheville Field Office

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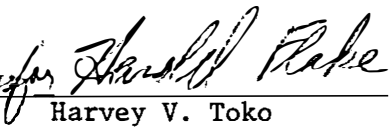
EUCALYPT PEST SURVEY:
SOUTHERN FLORIDA - 1982

Prepared by:


Forest Entomologist,
Divisions of Forestry and
Plant Industry, FDACS


Forest Pathologist,
Divisions of Forestry and
Plant Industry, FDACS

Approved by


Harvey V. Toko
Staff Director
Forest Pest Management

INTRODUCTION

Prior to the turn of the century, homesteaders in Florida planted eucalypt seedlings to quickly obtain shade and windbreaks. However, not until the 1960's was a commercial interest in eucalypts apparent. During that decade the Florida Division of Forestry made several introductions and initiated development of commercial nursery techniques. Research started by the Florida Forest Foundation, later absorbed by the US Forest Service, centered on development of a hardwood timber resource, especially in south Florida. In 1971, the Southeastern Forest Experiment Station (USFS) established cooperative research agreements with several forest industries and landowners to develop a commercial planting program for eucalypt pulpwood production in Gulf coastal areas (Franklin 1977). To date, over 16,000 acres of commercial eucalypt plantations have been established in southern Florida.

In 1975, the Southeastern Area - State and Private Forestry, Forest Pest Management (USFS) entered into an agreement with the SE Forest Experiment Station on monitoring eucalypt pests. Spring and fall surveys were conducted through March 1980. In 1981, the pest monitoring responsibilities were assumed by the Florida Division of Forestry.

This report summarizes data collected from the eucalypt pest survey conducted 19-20 May 1982 in eucalypt plantations established near Palmdale, Glades Co.

METHODS

Five planting blocks, previously surveyed by Martin and Anderson (1981), were visited by the DOF survey team (Fig. 1). Tree species present were Eucalyptus grandis Hill ex Maiden, Eucalyptus robusta Sm., and Eucalyptus viminalis Labill.

Prior to plantation establishment, the sites were characterized as palmetto prairies — predominant site species were saw palmetto (Serenoa repens Small), wire grass (Aristida spp.), and slow-growing south Florida slash pine (Pinus elliottii var densa Little & Dorman). Site preparation usually consisted of chopping and bedding; some plots were fertilized with ground rock phosphate.

A maximum of 36 trees was inspected per designated plots within a block. Observations were restricted to groundline and up unless warranted otherwise. Destructive sampling was usually constrained to locating a matched pair of non-survey tree near survey tree.

Damage types observed on the eucalypts are listed in Table 1, some of these are depicted in Martin et al. 1980. A total of 638 trees (E. grandis = 383, E. robusta = 151, E. viminalis = 104) were surveyed in 1982.

The DOF survey team consisted of E. L. Barnard (pathologist), W. N. Dixon (entomologist), R. A. Schroeder (biologist), P. Palmiotto (forester, Indian River Co.), and W. Blythe (forester, Martin Co.).

RESULTS and DISCUSSION

The one damage type that overshadowed all others was freeze damage — virtually all trees exhibited minimal to severe freeze damage. The freeze occurred on 12 January 1982 when ambient temperatures reached 18°F (-7.8°C) by 0600 and remained below freezing 4-6 hours. Most trees exhibited stem dieback at or near groundline with the exception of E. grandis in block 5. Many of these trees had all or part of their crowns above the cold air layer (>35-40 foot height); only crown portions with diameters \leq 4 in. in the cold air were killed to the bole. A proliferation of epicormic branches was observed on stems below the damaged areas. In comparison, trees with dbh \leq 4 in. were killed to groundline. Numerous stump sprouts or basal sprouts were observed on these survey trees.

Post-freeze dehydration was prominent in some plantings of E. grandis (14%-block 1), E. robusta (37%-block 1), and E. viminalis (24%-block 3) (Table 1).

Prominant pathological damage types were basal fissuring on E. viminalis (15%-block 3) and E. grandis (14%-block 5). Kinosis was exhibited on E. viminalis (13%-block 3). Robusta breakup was common on E. robusta (32%-block 5), as was multiple stems (18%-block 5) (Table 1).

Several fungi were isolated from survey and non-survey eucalypt specimens (Table 2). The Dothiorella sp., found in stem cankers, is presumed to be the imperfect stage of Botryosphaeria dothidea (Moug. ex Fr) Ces & de Not.

(Syn. B. ribis Gross. & Dug.). B. dothidea is a common bark inhabitant and an opportunistic canker fungus occurring on a wide variety of woody species. B. dothidea and the Diplodia sp. were apparently colonizing wounded and/or frost-damaged tissues. These fungi are not expected to develop into pathology problems of concern on eucalypts. The decay fungi Polyporus cinnabarinus Jacq. ex Fries and Polyporus hydroides Swartz ex Fries were observed fruiting on dead eucalypt slash.

Evidence of foliage feeding insects (≥ 1 damaged leaf) was seen in nearly all blocks (Table 1). No significant level of foliage feeding was observed on any one tree. Most damage per se was due to unknown leafmining species. Dissection of several leaves revealed no recognizable insect parts. Less common was a shot-hole damage type. Contrary to the 1980 survey by Martin and Anderson, no debarking by grasshoppers was observed on survey trees. The low levels of insect activity may have been a reflection, in part, of the freeze which lowered insect populations for a period of time through direct kill and abrupt loss of suitable eucalypt foliage.

REFERENCES

- Franklin, E. C. 1977. Yield and properties of pulp from eucalypt wood grown in Florida. Tappi 60:65-67.
- Martin, M. B., and R. L. Anderson. 1981. Incidence of diseases and insect damage in selected eucalypt plantations, southern Florida. USDA-For. Ser., S&PF-FPM Rep. #81-1-20. 11p.
- Martin, M. B., R. L. Anderson, V. J. Fisher, and T. R. Gentry. 1980. A handbook for recognizing insect, disease, and various types of damage on eucalypts in Florida. USDA-For. Ser., S&PF-FPM Rep. No. #81-1-6. 18p.

Table 1. Incidence (%) of damage types on eucalypts in south Florida (Glades Co.)
19-20 May 1980.

DAMAGE TYPE ¹	BLOCK							
	G ²	R	G	R	V	G	G	R
Foliage Pathology								
Anthocyanescence	5.00	-	3.33	-	1.11	-	2.54	-
Chlorosis	-	-	-	-	-	0.98	-	-
Curling/cupping	3.13	4.55	-	-	5.73	-	-	-
Freeze (see stem)								
Leaf spots	-	-	-	15.63	1.52	14.12	4.29	2.86
Littleleaf	-	-	4.17	-	1.11	-	-	-
Marginal necrosis	-	-	4.17	-	-	-	-	-
Tip burn	-	-	4.17	-	-	-	4.29	-
Wilt/droop	-	-	-	-	-	-	-	-
Stem Pathology	3.13	-	-	3.13	14.96	-	14.26	0.91
Basal fissuring	-	-	-	-	-	-	5.75	0.91
Basal canker	-	-	-	-	1.11	-	-	-
Cylindrocladium	-	-	-	-	-	-	-	-
Deformity	-	-	-	-	-	-	-	-
Freeze	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Freeze sprout	-	-	-	-	-	-	1.00	1.43
dieback								
Galls	-	-	-	-	-	-	-	-
Kinosia	-	-	4.17	-	13.32	-	1.43	-
Misc. canker	9.38	-	-	-	1.28	-	3.65	-
Multiple stem	-	9.09	-	3.13	1.04	-	6.43	18.48
Muscle wood	3.13	-	-	-	-	-	3.97	-
Post-freeze	14.38	37.38	4.17	-	23.64	1.18	3.65	8.00
dehydration								
Robusta breakup	-	-	-	-	-	-	-	32.16
Entomology								
Foliage feeding	8.13	58.59	26.67	31.25	1.25	6.14	-	5.86
Other								
Animal	-	11.11	-	3.13	-	-	-	-
Mechanical	-	-	4.17	-	0.98	-	-	-
Missing	19.44	41.67	5.56	3.13	13.89	6.48	30.11	25.82
Dead	8.33	5.56	13.89	9.25	5.56	10.19	2.65	-

^{1/} Other damage types were used on field data sheets; however, the lack of one or more entries precludes listing in table.

^{2/} G = E. grandis; R = E. robusta; V = E. viminalis.

Table 2. Fungi isolated from miscellaneous eucalypt specimens collected during 19-20 May 1982 eucalypt pest survey in south Florida (Glades Co.).

Specimen	Host	Location	Fungus	Comments
foliage	<u>E. grandis</u>	Palmdale	<u>Pestalotia</u> sp.	red leaf spots
foliage	<u>E. grandis</u>	Palmdale	<u>Harknessia insueta</u>	nutrient deficient symptoms
foliage	<u>E. grandis</u>	Palmdale BL 4, P-4 #9	<u>Dothiorella</u> sp. <u>Pestalotia</u> sp.	edema-like symptoms
foliage	<u>E. grandis</u>	Palmdale BL 4, C4	<u>Diplodia</u> sp.	superficial leaf spots
roughened bark	<u>E. calimaldulensis</u>	Palmdale BL 5	<u>Pestalotia</u> sp. <u>Penicillium</u> sp.	reminiscent of <u>Cylindrocladium</u> cankers on <u>E. viminalis</u> ¹
stem canker	<u>E. grandis</u>	Palmdale BL 1	<u>Dothiorella</u> sp.	elongate, depressed frost canker
stem canker	<u>E. grandis</u>	Palmdale BL 2	<u>Dothiorella</u> sp.	elongate, depressed frost canker
stem canker	<u>E. grandis</u>	Palmdale	<u>Dothiorella</u> sp.	cankers associated with frost damage & branch stubs
stem canker	<u>E. grandis</u>	Palmdale BL 5	<u>Diplodia</u> sp.	advanced bark fissuring associated with branch stub/frost damage

¹/Martin et al. 1980. p3.

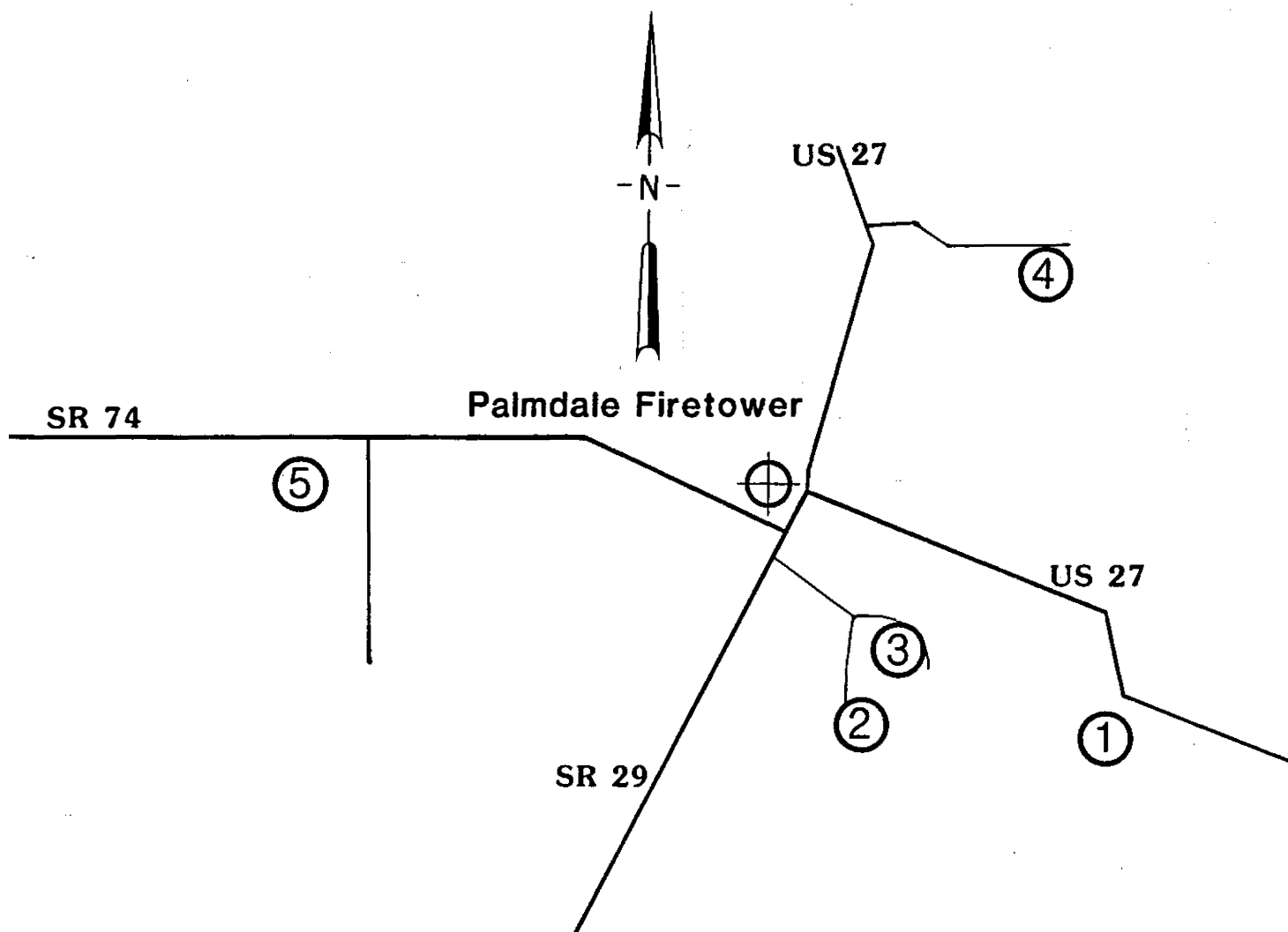


Fig. 1, Locations of eucalypt plantations inspected on 19-20 May 1984 during eucalypt pest survey. Circled numbers = block numbers for eucalypt plantations.